

**THERMIONIC**

**CULTURE**

**THE PHOENIX HG15**  
*high gain valve compressor*

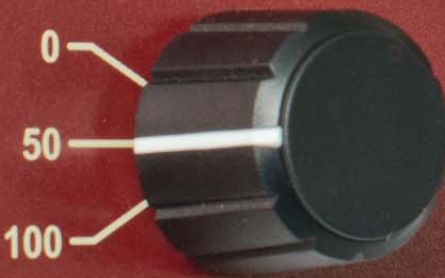
+48V



**INPUT SELECT**



**INPUT GAIN**



**BASS CUT (Hz)**

**OPERATING MANUAL**



# WARNING

For your personal safety, please read this operating manual and warning thoroughly before using the equipment.

This unit must be installed in such a manner that operator access to the mains plug is maintained. Where the product is to be rack mounted, this may be achieved by having access to the disconnection device for the whole rack.

To reduce the risk of electric shock, it is essential that the unit is disconnected from the mains supply before removing the cover.

Please also note that the power supply capacitors within this unit can remain charged even after the mains supply has been disconnected. It is essential that these capacitors are discharged after the mains supply has been disconnected and the covers have been removed.

In the event that this unit has been dropped or has suffered an impact, an electrical safety test must be carried out before reconnection to the mains supply.

This equipment is not intended for use in explosion hazard environments. It must be used and stored in studio conditions, such that the ambient relative humidity does not exceed 80%, nor is the temperature to be allowed to drop to a level, which would cause dew point to be reached.

Please ensure that adequate ventilation is provided and that the ventilation slots are not obstructed. When rack mounting this equipment, a fan may be required to provide sufficient airflow.

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## 1 Introduction

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The Phoenix HG is a single channel version of our classic Phoenix Stereo Compressor.

The gain has been boosted to suit mic inputs, particularly valve or FET condenser types, though many moving coil mics such as Shure, Audio Technica, etc. are fine to use with it on vocals and close mic-ing most instruments.

As a line level compressor it will perform as a mono Phoenix with a slightly harder compression. The compression ratio is not user adjustable and increases as compression increases to be a limiter at very high levels. This gives a very natural effect, especially with vocals.

Some basic eq. is provided, bass roll-off and active lifts ("Presence" and "Air") which can be switched in and out together.

Two Phoenix HGs can be linked for stereo operation by the Link socket on the rear. We have also provided a Side Chain Bass Cut switch.

## **2 Installation**

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The Phoenix HG 15 should be rack-mounted.

Although it is valve based, therefore producing more heat than solid state units, it can be racked with no space above, as long as the room temperature is within the range 0-25°C and there is adequate ventilation beside and at the rear of the unit to dissipate heat.

Input and Output connections are standard XLRs with pins 2 and 3 Signal, (transformer 'balanced') and pin 1 ground. If coming from and to unbalanced sources, pin 2 should be "Hot".

**DON'T FORGET TO CHECK THE MAINS VOLTAGE SWITCH IS CORRECT FOR YOUR AREA.**

(230/115V = 220-240V / 110-120V) Check the fuse is correct (see table).

This will usually be set at the factory if the destination is specified, eg. 115V for North America and Japan, 230V for other destinations.

The Link phono socket is provided so that 2 HG15s can be linked together for stereo operation. A standard phono to phono cable can be used for this purpose.

### **2.1 Metering**

When the unit is warmed up (allow about 5 minutes), set the compression meter to zero. The adjustment is just below the meter itself and can be done with the tool provided. Do not adjust the screw on the meter itself unless the needle is not horizontal when the unit is cold.

The Metering is not necessarily accurate so use it as a guide only.

## 3 Controls

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### 3.1 Input

This controls the signal level going to the HG15.

Switched to MIC the max. gain is over 50dB making it suitable for most microphones, though not those with a low output, eg. ribbon mics.

PAD Reduces the level by 14dB for very high mic. sources, or for extra compression if 'line source'.

LINE Designed for source levels of 0dBu - +18dBu.

**NB.** The +48V switch will apply phantom power to mics in MIC & PAD mode. Ensure that it is off when using the PAD setting for extra compression from a line source.

### 3.2 Gain

Finely controls the input level to the HG15 using a high quality conductive plastic potentiometer.

### 3.3 Bass Cut

This control is supplied basically to reduce the proximity effect of close mic-ing.

### 3.4 Threshold

This controls the point at which the compression 'kicks in'. Max compression is at 5.

### 3.5 Time Constant

We have decided to have 6 positions which relate to most common and usable settings of attack and

release – as Fairchild 670 etc. Attack and release times are in 3 categories each – Fast (F), Medium (M) and Slow (S). Each switch position is a composite of Attack / Release.

1 = F/M, 2 = F/S, 3 = M/ F, 4 = M/M, 5 = M/S, 6 = S/M.

### **3.6 Side Chain Bass Cut**

This switch reduces the compression on signals below 100Hz - see op hints.

### **3.7 Presence**

This control mimics the highly acclaimed mid-lift control on the Earlybird 2.. It's simply a very broad – band lift peaking at around 3 kHz.

### **3.8 Air**

Boosts the very high end, peaking at:

6. 10 kHz, 5. 13 kHz, 4. 18 kHz – then 3., 2. & 1. are damped versions of 6., 5. & 4., making the response broader and more of a 'shelf'.

### **3.9 Active EQ**

Both "Presence" and "Air" can be switched IN/OUT together using this switch.

### **3.10 Output Trim**

A reverse linear attenuator, reducing output level by up to 15dB to suit low level inputs.

## **4 Servicing & Maintenance**

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The unit comes with a 12 month warranty covering all parts, including valves. It is essential that it is returned to our factory or to the dealer from which it was purchased for repairs to be carried out otherwise the warranty is invalidated. There is, however, one important exception to this rule:

### **4.1 Valves/Tubes**

The most likely cause of a problem is a faulty valve. Before sending a unit back to us, please contact us and we will advise whether it's a simple valve fault and if so we may elect to send a spare. However it is always best to return it to your dealer or to us as re-alignment will ensure optimum results.

Correct valves are

Input: 6AQ8 (ECC85)

Output: 12AT7 (ECC81)

### **4.2 Operating voltage/Fuses**

Operating Voltage	Fuse Rating
115V	T630mA 20mm type
230V	T315mA 20mm type



## 5 Operational Hints

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The HG15 is designed specially as a vocal compressor, though it's very much at home also as a track compressor, using 2 together for stereo buss. Also great for individual instruments.

When recording direct from a mic source, the MIC setting is fine for most microphones, whether condenser (valve or FET) or moving coil dynamic. However, PAD can be used for high output mics that like a higher impedance input.

The TIME CONSTANT switch controls both attack and release and settings are very much the preference of the individual user. To start with, 3 is good for vocals, 1 for violins, 6 for percussive instruments. Please let us know your own preferences by email as this section may be expanded or the settings changed.

The OUTPUT TRIM should be used at or close to max (0dB) for cleanest results when going to a standard Line input. Set lower if you're driving the HG15 harder for some harmonic distortion, or just to trim the level when compressing heavily.

The SIDE CHAIN feature on the HG15 has a significant effect on the frequency response of the compression and also the time based response.

It's commonly known that lengthening attack times on compressors will allow transients to pass through whilst triggering the compression less if desired. However part of this effect is that low frequency impulses will also tend to pass through un-compressed and this is partly what makes slow attack times so popular. Low frequency impulses contain a lot of energy which will trigger the compression more easily than higher frequencies and they tend to decay slowly as well. This can make the release time of the compressor feel very slow and sluggish.

If the SIDE CHAIN BASS CUT is used this will allow low frequency impulses to trigger the compression much less, at the same time a fast attack time could be used and this will mean that transients can be compressed quite effectively without the low frequency impulses causing the compressor to over compress. This will make the compressor seem much faster as it's attack time is faster and the release time will not be slowed down by a slow decaying low frequency impulse.

A good example of this would be in a situation where a vocal is being recorded with a lot of proximity effect from the microphone. Percussive parts of the vocal sound may well contain a lot of low frequency information.

It might normally be decided to remove the low frequencies from the vocal sound in order to stop any problems with unwanted over compression.

Or the Phoenix HG 15 side chain bass cut can be engaged to stop the compressor responding to the low frequency impulses. This can help to give a "tighter" sounding result that still contains a lot of low frequency information which might be a desirable part of the vocal sound.

This situation can apply to many other instruments or sounds like bass guitars, bass drums, synthesised sounds or any instrument / sound or mix of sounds that contains low frequency information.

## 6 Specification

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Input impedance	MIC:	1k $\Omega$
	PAD:	2K $\Omega$
	LINE:	10k $\Omega$

Output Impedance: 600 $\Omega$

Max gain	MIC:	52 dB
	PAD:	38 dB
	LINE:	25 dB

THD (30kHz filter)	1kHz:	0.12%
	100Hz:	0.22%

N.B. Distortion may increase with compression, especially with faster settings and 12 dB + compression.

Frequency response +0/-1dB 16 Hz to 50 kHz

Max O/P level (MOL): + 25.5 dBu, 10k $\Omega$  load

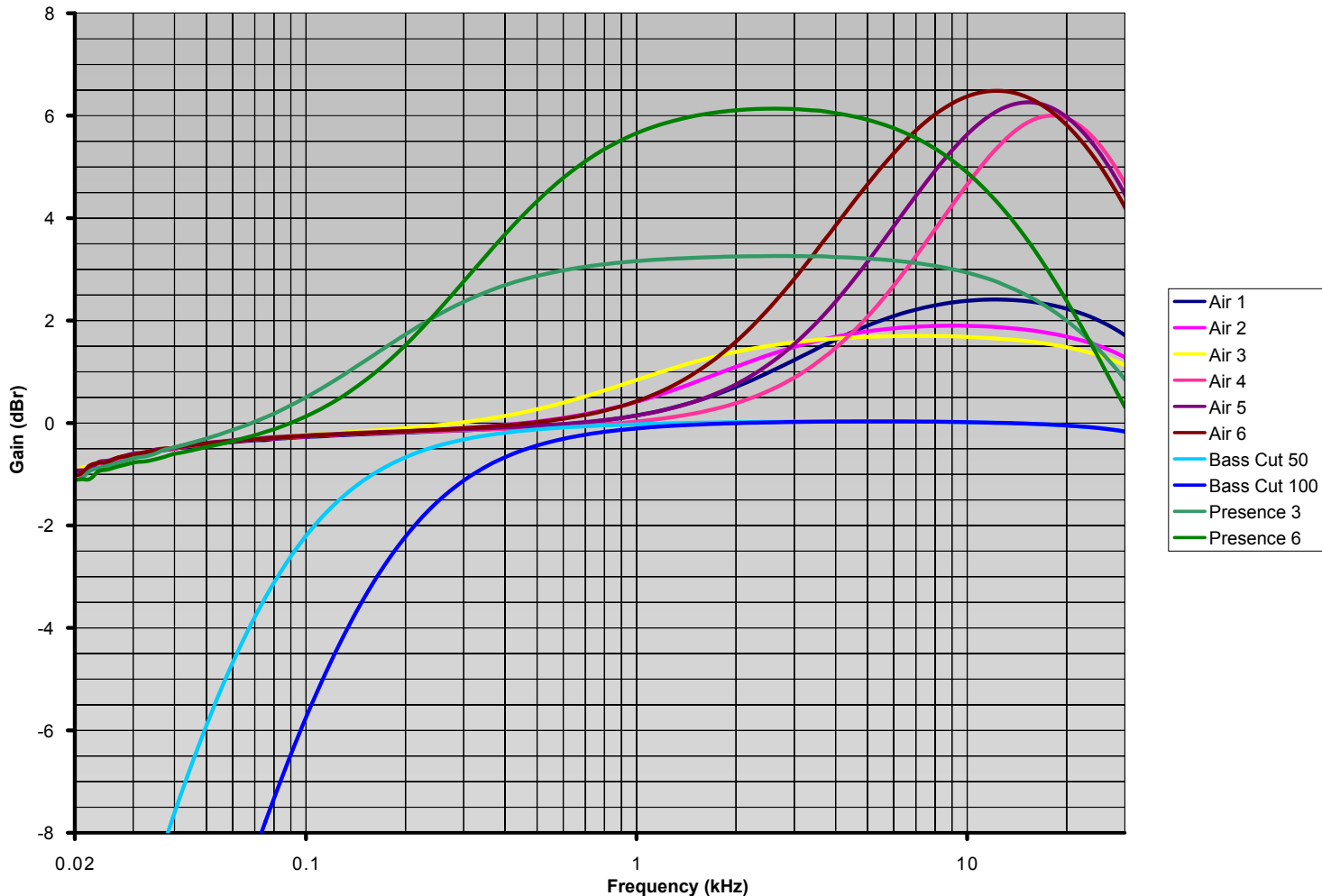
Signal to Noise: 96 dB

Power Consumption: 19W

Indicator Lamp: 12V / 3W

Net Weight: 4kg

### Phoenix HG Frequency Response



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